



**Town of Arlington
Office of the Town Manager**

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To: Members of the Board of Selectmen

From: Adam Chapdelaine, Town Manager

RE: Results of Water/Sewer Rate Study – Proposed Water/Sewer Rate Adjustments FY2014

Date: June 10, 2013

I am providing for the Board's deliberation and discussion a summary of the recommended water/sewer rate adjustments being proposed for FY2014 along with a more detailed memorandum from the Town's water/sewer rate consultant regarding the findings of the rate study. This rate study served as the basis for the recommended adjustments that will be before the Board on June 17, 2013.

Water/Sewer Rate Adjustment Summary

Timeline of Recommendations

- **July 1, 2013:** Increase water and sewer rates 7.5%
- **January 1, 2014:** Implement new water and sewer rates, including the new block structure (shown below), revised service charges, and proposed private fire service charges (included in detailed rate memo).
- **July 1, 2014:** Convert to quarterly billing for water and sewer bills. The rate blocks or steps shown are for semi-annual billing and would need to be adjusted for quarterly billing. Rate increases for this period will be brought before Board in spring of 2014.
- **July 1, 2015:** Adopt new sewer rates to address irrigation use. Rate increases for this period will be brought before Board in spring of 2015.

Summary of Rate Adjustments

<u>Water</u>	Current Structure	7.5% Increase 7/1/2013 - 12/31/2013	Proposed Blocks for 1/1/2014 - 6/30/2014
0-200 ccf/yr	\$4.61	\$4.96	
over 200 ccf/yr	\$6.79	\$7.30	
0-30 ccf/6 months			\$4.75
30-60 ccf/6 months			\$5.08
over 60 ccf/6 months			\$6.16
<u>Sewer</u>			
0-1000 ccf/6 months	\$4.86	\$5.22	
over 1000 ccf/6 months	\$9.70	\$10.43	
0-30 ccf/6 months			\$5.71
30-60 ccf/6 months			\$6.10
over 60 ccf/6 months			\$7.40

- Under the current structure, only 2% of water users go over the 200 ccf/year threshold and only .2% of sewer users go over the 1000 ccf/bill threshold.
- Under the proposed block structure:
 - 50% of ratepayers would fall into the 0-30 ccf/6 months block
 - 40% of ratepayers would fall into the 30-60 ccf/6 months block
 - 10% of ratepayers would go over 60 ccf/6 months

Financial Impact on Ratepayers Under FY2014 Proposal

Annual Usage (ccf)	Annual Bill - Current Structure	Annual Bill - 7/1/13 Proposal	% Increase	\$ Increase
20	\$230.02	\$249.66	8.5%	\$19.64
30	\$324.72	\$352.86	8.7%	\$28.14
50	\$514.12	\$559.26	8.8%	\$45.14
70	\$703.52	\$769.26	9.3%	\$65.74
300	\$3,099.62	\$3,557.07	14.8%	\$457.45
2000	\$22,904.62	\$25,759.26	12.5%	\$2,854.64

MEMORANDUM

TO: Michael Rademacher
Director of Public Works
FROM: Christopher Woodcock
DATE: May 23, 2013
SUBJ: Memorandum on Water & Sewer Rate Alternatives

Attached is a summary of the various rate alternatives we have examined for Arlington. We have included several alternative rate structure options including the adoption of new rate blocks and the adoption of seasonal water and sewer rates. We have also looked at:

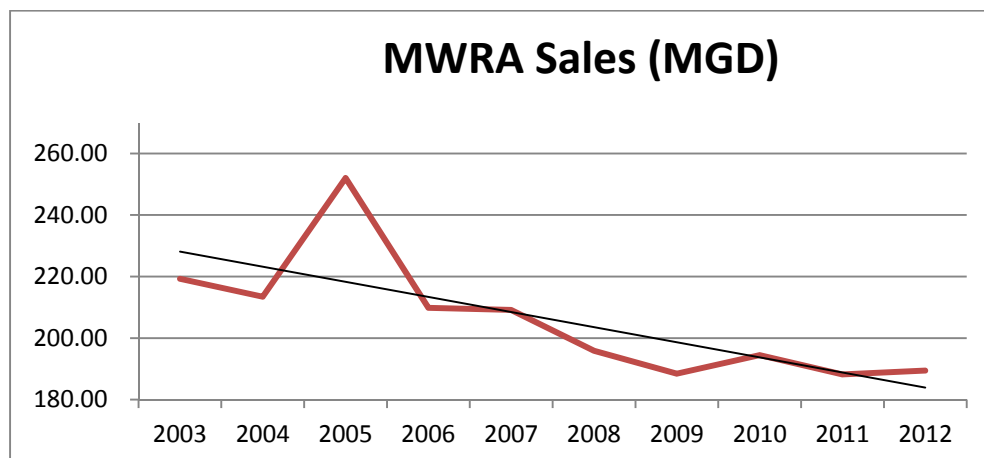
- conversion from semi-annual to quarterly billing for water and sewer
- the question of allowing a second or irrigation meter for those accounts that have large irrigation (or other water uses) that are NOT returned to the sewer system, and
- the impact on the rates of varying levels of debt assistance from the Town.

Lastly, we have included a preliminary implementation schedule based on our discussions.

In preparing the attached rate projections we have generally assumed 2% increases in the Town's operating costs. The MWRA assessments are based on the Authority's projected overall annual increases; however, the actual changes will vary from community to community over the years, depending on individual community water use and wastewater discharge. For the water system we assumed \$1,000,000 of capital improvements per year (based on the Weston & Sampson Report), with \$900,000 financed from new MWRA loans and \$100,000 from annual rate revenues. In addition, we assumed a \$2 million bond issue in Fiscal Year 2015 (first payments due in FY 2016) for the purchase and installation of new water meters across the Town. For the sewer system we used the Town's projected capital program with \$750,000 of low interest MWRA bonds every other year and the balance funded from rate revenues. This will require an appropriation to be paid from current sewer rate revenues of \$750,000 in FY 2015, \$850,000 in FY 2016, \$525,000 in FY 2017 and 2018, and \$500,000 per year thereafter.

Water Sales

Over the past decade water sales have generally been dropping across the northeast. The following graph shows the annual MWRA water sales with a line added to show the general trend in water sales.



As shown on this chart, the recent drop in sales appears to have leveled off. For the first four months of 2013, the total MWRA sales have slightly increased over the same period as last year. For Arlington, we have projected that the recent drop in sales will stabilize and that water sales will remain at the current levels through FY 2016 when we have projected a 2% overall increase with the installation of new water meters in the prior year. Thereafter, we have projected that sales will remain at the FY 2016 levels. There are a number of reasons suggested for the decline in water sales over the past few years; the economic slowdown across the country being one of those reasons. The recent upturn in the economy may suggest a normalization of water sales.

Metered Rates

The three water and sewer rate alternatives that are summarized on the attached sheet include a simple across the board increase to the current rates, the adoption of a new three step block rate structure that is the same for water and sewer, and a seasonal rate structure.

- The Across the Board increases maintain the current water and sewer rate tiers (e.g., 0-200 hundred cubic feet/year for the first tier water use and over 200 hundred cubic feet for the second tier water use) and increases the rate per hundred cubic feet by an equal percentage each year (see chart below). The current meter service charge is also increased by the same percentage as the water rates.
- The alternative rates shown under New Blocks reflect a proposed new rate structure with new water and sewer rate tiers. The Town's current water rates include two tiers or steps. The first 200 hundred cubic feet (ccf) used in a year are charged at one rate (\$4.61/ccf) and the any additional use in excess of 200 hundred cubic feet within the year is charged at a higher rate \$6.79/ccf). This form of rate structure, whereby the usage accumulates over a full year and not over each billing period, is quite unusual. Water and sewer rates are more often set like the Town's sewer rates where the first 1000 hundred cubic feet in a six month billing period are billed at one rate (\$4.86/ccf) with any use in excess over 1000 hundred cubic feet in that six month period billed at the higher rate (\$9.70). The next six month sewer bill resets and the first 1000 hundred cubic feet are billed at the lower rate and any excess at the higher rate. For Arlington we propose three rate tiers for water and for sewer that each reset with each new bill.
 - The first tier is proposed at 30 hundred cubic feet per six month billing period (about 125 gallons/day). About half the town's customers use less than this and just over half the total water sales would be billed at the first tier rate.
 - The second step is proposed for use between 30 and 60 hundred cubic feet. Nearly 90% of the customers use less than 60 hundred cubic feet per six month period, and approximately 25% of the total water use would be billed at the second tier rate.
 - The final tier would be for all use in excess of 60 hundred cubic feet per six month billing period. About 10% of the Town's customers would be subject to this highest tier rate and it would include about 25% of the total sales.

Along with the proposed change in the water and sewer rate tiers, the rates under the New Blocks heading also include (1) a new semi-annual service or meter charge that varies with size of the customer's water meter and (2) a proposed new charge for customers that receive private fire protection service. These last two charges are discussed in more detail below.

- The third alternative on the attached chart shows a Seasonal water or sewer rate structure. Seasonal rates are used in parts of the country where there are significant water shortages. This form of rate structure is intended to set significantly higher rates for use during peak summer periods to discourage non-essential water uses such as irrigation. With semi-annual billing in Arlington, it would be difficult to identify a true summer billing period that is the same for all customers. Moreover, this type of rate structure is commonly used where there is monthly billing and customers can be sent frequent reminders about the higher summer rates in the form of the water and sewer bill. With semi-annual billing, the notice will typically arrive well after the excess use occurs and this form of rate structure becomes more of a penalty than an economic incentive. While we have presented this alternative, we do not recommend its adoption in Arlington at this time.

Arlington's water and sewer accounts are accounted as a single combined enterprise fund with \$5,593,112 of annual debt assistance paid by the General Fund to offset a portion of the MWRA's debt assessments for water and sewer and lower the water and sewer rates. The Town has plans for 7.5% annual increases in water and sewer rates. Although the two funds are combined, we have looked at each of them as if they were separate. With the proposed capital plan outlined above and the projected expenses and sales, we have projected that Arlington's water rates do not need to increase by the full 7.5% per year in order to cover the water system costs. On the other hand, we project that the sewer rates will generally need to increase at more than 7.5% per year in order to cover the projected expenses.

As discussed later, we recommend that the Town move forward with the previously proposed 7.5% increase on July 1. On January 1, 2014, we recommend that the new block rates be adopted. The following chart presents our estimates of the annual increases that may be needed over the next few years. These are provided to give the Town a sense of what future increases may be; however, the increases should be evaluated each year to determine a more up-to-date amount.

Estimated Future Revenue Increases

<u>Fiscal Year</u>	<u>Water</u>	<u>Sewer</u>
2015	3.4%	8.2%
2016	6.0%	9.4%
2017	6.9%	7.1%
2018	0.5%	-2.5%
2019	5.0%	7.6%
2020	3.7%	7.4%
2021	3.7%	0.4%

Customer Meter or Service Charges

Arlington currently assesses a fixed charge of \$20.31 on all water and sewer bills to all customers. Charges of these types are typically associated with the fixed costs of metering and/or the availability of service. These costs are greater for customers with larger meters; it costs more to purchase, maintain and test larger meters and customers with larger meters can require the use of more of the fixed capacity costs than customers with smaller demands. The attached summary presents a proposed

revision to the fixed charge under the second two alternatives whereby the fee increases with meter size to reflect the higher costs associated with larger meters.

Private Fire Service Charges

In addition, Arlington has customers with special connections of their individual fire suppression systems to the Town's water system. There is a cost of making the capacity to provide a large volume of water to fight fires at a moment's notice. The attached summary also presents recommended charges for those customers with private fire connections that receive this special service from the Town.

Quarterly Billing

Arlington bills for water and sewer service two times per year, with portions of the Town billed each month. The Town has expressed interest in a possible increase in billing frequency.

Most utilities send out monthly bills to their customers. People are used to receiving a monthly bill for electricity, natural gas, telephone service, and cable television. In New England, the exception is water and sewer bills. While it is common practice in many parts of the United States to bill for water and sewer service monthly, that is not the case in this area. The MWRA Advisory Board's 2012 Annual Water and Sewer Rate Survey presented the following information for those communities in the MWRA system:

Semi-annual (2X)	10
Tri-annual (3X)	2
Quarterly (4X)	41
Bi-monthly (6X)	2
Monthly (12X)	5

Of the 60 communities only 5 bill for water/sewer service monthly, with nearly 2/3 billing quarterly. The next most common billing frequency (about 17%) is semi-annual billing.

While there are certainly added costs associated with more frequent billing, there are also benefits, many of which are difficult to quantify. As meter reading technology advances, the added cost of more frequent meter reading and billing will drop. It should be noted that billing is not always synonymous with meter reading. Quite often utilities will obtain an actual meter reading every other month and base the bill on estimates for the intervening months. In some cases this works well with no impact on customers' bills. In cases where the rates are based on usage amounts within the billing period (block rates) or where rates may vary by season, actual meter readings each month may be preferable.

The advantages and disadvantages of more frequent billing are presented below.

Advantages

- *Increased cash flow.* Moving to more frequent billing will provide an increase in cash flow. The more frequent billing results in an earlier, albeit smaller, increase in billing for most customers. The magnitude of the increase in cash flow will depend on the current and new frequencies of billing. For example, if bills are issued twice a year and the

change is to quarterly billing, about 25% of the annual revenues would be billed some three months sooner at the first quarterly bill. The next quarterly bill would only reflect the balance that would otherwise have been billed semi-annually. The third quarterly bill would result in a sooner collection of revenues, while the fourth bill would also just reflect the incremental amount that would normally be billed.

- *Smaller bills.* More frequent billing result in smaller bills to customers. Doubling the billing frequency (e.g. moving from semi-annual to quarterly billing) would result in customer bills that are approximately one half of what they were previously. Some customers may find payment of the smaller bills easier to pay and budget, resulting in some improvement in collections and perhaps faster payments.
- *Conservation/Price Signals.* Sending bills more frequently provides a mechanism whereby customers are notified (through their bill) of the cost of water and sewer service and can be a reminder of the cost of excessive water use. If bills are sent at less frequent intervals, the billings are more of a penalty for past practices than a reminder to use water wisely in the future. If the Town is trying to send a price signal to use less water in the summer, a high bill in the fall can certainly penalize excess use. However, if bills are sent more frequently it can serve as a reminder to the customer before the summer is over.
- *Leak detection.* Customer leaks are often discovered as the result of unusually high water and sewer bills. With infrequent billing, the leak may go unnoticed for nearly six months. With more frequent billings, leaks can be discovered sooner.

Disadvantages

- *Cost.* Certainly one of the disadvantages of more frequent billing is the added cost. Doubling the frequency from semi-annual to quarterly will double the Town's costs of meter reading, postage, bill forms, computer time, and handling and posting of receipts. With the advances in metering technology to more automated reading systems, the cost of more frequent readings is dropping however.
- *Revenue Estimates.* Changing to more frequent billings can make estimates of revenues more difficult, particularly with a block rate system. While the usage steps or blocks would be adjusted (e.g., cut by one half if moving from semi-annual to quarterly billing), the usage at the different rates can change with different billing periods. Care must be taken to try and estimate this impact and allow sufficient allowances to assure full cost recovery.

We suggest that Arlington begin the process to implement quarterly water and sewer billing. We understand that this may take some time and will include additional billing and collection costs. However, we believe the current fixed network billing system will make this transition somewhat easier.

Second (Irrigation) Meters

As with many communities, Arlington bills for wastewater service based on the customer's metered water use. Because individual wastewater meters are not practical, the water meter serves as a surrogate. In using metered water use, it is generally recognized that 100% of the water use is typically not returned as sewage; a portion may be used for purposes such as irrigation, car washing, or in the manufacture of products. In some communities adjustments are made to the metered water use by

allowing customers to install a second water meter to measure the water that is not returned. To avoid the cost of installing a second meter and to treat all customers the same, other communities use a percentage of the metered water use¹ or, alternatively, base the sewer billing on the customer's winter water use (when there is little or no outside water use). Because Arlington bills its customers semi-annually, it may be difficult to determine a true winter use period². Nonetheless, it is recommended that Arlington consider the use of winter water use for sewer billing rather than allowing the piecemeal installation of irrigation or other meters.

General Fund Debt Service Support

As discussed earlier, Arlington provides in excess \$5.5 million of annual assistance from the general fund to pay for a portion of the MWRA water and sewer assessments associated with the Authority's debt. This helps reduce Arlington's water and sewer rates, but shifts the cost to property tax bill. To see the impact of the debt assistance transfer, the projected 2014 water and sewer rates were examined for three alternative scenarios:

- Eliminate all debt assistance and recover the full costs through the water and sewer rates
- Increase the amount of debt assistance to recover the full cost of the MWRA debt (approximately \$7.635 million)
- Reduce the debt assistance to \$2.5 million per year.

The following table shows the impact of these alternatives on the projected FY 2014 water and sewer rates. The percentage increases assume the adoption of the new rate blocks and charges and do not reflect the proposed phase-in implementation schedule presented below.

IMPACT OF VARYING AMOUNTS OF DEBT ASSISTANCE

Overall 2014 Rate Increases With:

	<u>Amt. Debt Assist.</u>	<u>Water</u>	<u>Sewer</u>	<u>Total</u>
Current Debt Assistance	\$5,593,112	4.5%	20.8%	12.2%
No Debt Assistance	\$0	36.9%	82.9%	58.6%
Full MWRA Debt Assist	\$7,634,279	-7.2%	-1.9%	-4.7%
Reduced Assistance	\$2,500,000	22.4%	55.2%	37.8%

Proposed Schedule

Based on our discussions with the Town's operating staff, we suggest the following timetable for the adoption of new water and sewer rates and charges:

- July 1, 2013: implement the planned 7.5% increase to the water and sewer rates. The Town is looking into a number of water and sewer billing enhancements including on-line bill payments and the conversion to quarterly billing. A change to the rate structure at this time may be confusing to customers. Delaying the recommended water and sewer increases discussed earlier and simply increasing both sets of rates at the previously planned 7.5% will result in a net annual revenue loss of about \$600,000. The enterprise fund balance at the end of the current

¹ For example, the City of Worcester bills for sewage based on 80% of metered water use and Norwood bills for sewage based on 60% of the metered water use.

² While the current fixed network system can gather this data, it is not currently available for the prior winter.

year (FY 2013) is estimated to be in excess of \$2 million. Accordingly, there are sufficient cash reserves to absorb this loss for the short term.

- January 1, 2014: Implement the proposed new water and sewer rates for FY 2014, including the new block structure, the revised service charges, and the proposed private fire service charges. Implementing these changes for January 2014 will reduce the annual loss in revenues to about \$300,000 and help preserve the Town's enterprise fund cash reserves.
- January 1, 2014: adopt the new water and sewer rate blocks shown on the attached summary along with the new service/meter charges and the proposed fire service charges.
- July 1, 2014: convert to quarterly billing for water and sewer bills. The rate blocks or steps shown on the attached summary are for semi-annual billing and would need to be cut in half for quarterly billing.
- July 1, 2015: Adopt new sewer rates that are based on the winter use from December 2014 – March 2015.

SUMMARY OF RATE ALTERNATIVES

Current Rates		2014			2015			2016		
		<u>Across the Board</u>	<u>New Blocks</u>	<u>Seasonal</u>	<u>Across the Board</u>	<u>New Blocks</u>	<u>Seasonal</u>	<u>Across the Board</u>	<u>New Blocks</u>	<u>Seasonal</u>
<u>Water</u>										
0-200 ccf/yr	\$4.61	\$4.82			\$4.98			\$5.28		
over 200 ccf/yr	\$6.79	\$7.10			\$7.34			\$7.78		
0 - 30 ccf/6 months			\$4.75			\$4.91			\$5.21	
30 - 60 ccf/6 months			\$5.08			\$5.25			\$5.57	
over 60 ccf/6 months			\$6.16			\$6.37			\$6.75	
winter				\$4.56			\$4.72			\$5.10
summer				\$5.48			\$5.67			\$6.13
<u>Sewer</u>										
0-1000 ccf/bill	\$4.86	\$5.87			\$6.35			\$6.95		
over 1000 ccf/bill	\$9.70	\$11.72			\$12.68			\$13.87		
0 - 30 ccf/6 months			\$5.71			\$6.18			\$6.63	
30 - 60 ccf/6 months			\$6.10			\$6.60			\$7.08	
over 60 ccf/6 months			\$7.40			\$8.01			\$8.59	
winter				\$5.50			\$5.95			\$6.51
summer				\$6.62			\$7.16			\$7.83
Service/Meter Charge (per semi-annual bill)										
<u>Meter Size</u>										
5/8"	\$20.31	\$21.23	\$21.42	\$21.42	\$21.23	\$21.97	\$21.97	\$21.95	\$23.31	\$23.31
3/4"	\$20.31	\$21.23	\$23.05	\$23.05	\$21.23	\$23.65	\$23.65	\$21.95	\$25.09	\$25.09
1"	\$20.31	\$21.23	\$27.95	\$27.95	\$21.23	\$28.67	\$28.67	\$21.95	\$30.42	\$30.42
1-1/2"	\$20.31	\$21.23	\$34.48	\$34.48	\$21.23	\$35.36	\$35.36	\$21.95	\$37.52	\$37.52
2"	\$20.31	\$21.23	\$52.43	\$52.43	\$21.23	\$53.77	\$53.77	\$21.95	\$57.06	\$57.06
3"	\$20.31	\$21.23	\$184.60	\$184.60	\$21.23	\$189.35	\$189.35	\$21.95	\$200.92	\$200.92
4"	\$20.31	\$21.23	\$233.56	\$233.56	\$21.23	\$239.56	\$239.56	\$21.95	\$254.20	\$254.20
6"	\$20.31	\$21.23	\$347.79	\$347.79	\$21.23	\$356.72	\$356.72	\$21.95	\$378.52	\$378.52
8"	\$20.31	\$21.23	\$478.33	\$478.33	\$21.23	\$490.62	\$490.62	\$21.95	\$520.60	\$520.60
Private Fire Charge (semi-annual charge)										
3/4"			\$5.00	\$5.00		\$5.00	\$5.00		\$5.00	\$5.00
1.25"			\$10.00	\$10.00		\$10.00	\$10.00		\$10.00	\$10.00
1.5"			\$15.00	\$15.00		\$15.00	\$15.00		\$15.00	\$15.00
2"			\$30.00	\$30.00		\$30.00	\$30.00		\$35.00	\$35.00
2.5"			\$55.00	\$55.00		\$55.00	\$55.00		\$60.00	\$60.00
3"			\$90.00	\$90.00		\$95.00	\$95.00		\$100.00	\$100.00
4"			\$195.00	\$195.00		\$200.00	\$200.00		\$210.00	\$210.00
6"			\$560.00	\$560.00		\$575.00	\$575.00		\$610.00	\$610.00
8"			\$1,195.00	\$1,195.00		\$1,225.00	\$1,225.00		\$1,300.00	\$1,300.00
10"			\$2,145.00	\$2,145.00		\$2,200.00	\$2,200.00		\$2,335.00	\$2,335.00

IMPACT OF RATE ALTERNATIVES - ANNUAL BILL FY 2014

100 Cu Ft/6 Months	Current			Across-The-Board Increase				New Blocks			
	Water	Sewer	Total	Water	Sewer	Total	\$/ Increase	Water	Sewer	Total	\$/ Increase
10	\$132.82	\$97.20	\$230.02	\$138.86	\$117.40	\$256.26	11.4%/\$26	\$137.84	\$114.20	\$252.04	9.6%/\$22
15	\$178.92	\$145.80	\$324.72	\$187.06	\$176.10	\$363.16	11.8%/\$38	\$185.34	\$171.30	\$356.64	9.8%/\$32
25	\$271.12	\$243.00	\$514.12	\$283.46	\$293.50	\$576.96	12.2%/\$63	\$280.34	\$285.50	\$565.84	10.1%/\$52
35	\$363.32	\$340.20	\$703.52	\$379.86	\$410.90	\$790.76	12.4%/\$87	\$378.64	\$403.60	\$782.24	11.2%/\$79
150	\$1,641.62	\$1,458.00	\$3,099.62	\$1,716.46	\$1,761.00	\$3,477.46	12.2%/\$378	\$1,741.44	\$2,040.60	\$3,782.04	22.0%/\$682
1,000	\$13,184.62	\$9,720.00	\$22,904.62	\$13,786.46	\$11,740.00	\$25,526.46	11.4%/\$2,622	\$12,275.46	\$14,620.60	\$26,896.06	17.4%/\$3,991

IMPACT OF VARYING AMOUNTS OF DEBT ASSISTANCE *

Overall Rate Increases With:

	Amt. Debt Assist.	Water	Sewer	Total
Current Debt Assistance	\$5,593,112	4.5%	20.8%	12.2%
No Debt Assistance	\$0	36.9%	82.9%	58.6%
Full MWRA Debt Assist	\$7,634,279	-7.2%	-1.9%	-4.7%
Reduced Assistance	\$2,500,000	22.4%	55.2%	37.8%

* Note: the percentage increases do not reflect the proposed phase-in of the new blocks. This table simply shows the impacts if the proposed new rate blocks and charges were implemented for a full year under different debt assistance scenarios.